

4495

4495

Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
State <u>Southwest Alaska</u>
11-5613
DESCRIPTIVE REPORT.
Hydrographic Sheet No. <u>5 4495</u>
LOCALITY:
Vicinity Cape Kumlik
<u>Southwest Alaska Pen.</u>
<u>C. Kumlik + Vic.</u>
<u>19²⁵</u>
CHIEF OF PARTY:
<u>CLEM L. GARNER</u>

WNB
MAR 24 1926

~~Division of Hydrography and Topography:~~

Division of Charts:

Tide reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET NO. 4495

Locality: S. W. Alaska

Chief of Party: C. L. Garner in 1925

Plane of reference is

5.4 ft. on tide staff at Sitkum

6.3 " " " " " Chignik

6.8 " " " " " Aniakchak

For reduction of soundings, condition of records satisfactory
except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A. M. or P. M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

G. H. Hude

Chief, Division of Tides and Currents.

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEET NO. 5.

Vicinity Cape Kumlik, Southwest Alaska.

Clem L. Garner, Chief of Party - - - - - Instructions dated March 25, 1925.

LIMITS: The hydrography of this sheet embraces an area bounded on the north by the south coast of Cape Kumlik, and latitude $56^{\circ} 38'$, on the east by longitude $157^{\circ} 18'$, on the south by a line roughly drawn between latitude $56^{\circ} 35'$ longitude $157^{\circ} 18'$, and latitude $56^{\circ} 32\frac{1}{2}'$, longitude $157^{\circ} 33\frac{1}{2}'$, and from this point to latitude $56^{\circ} 35'$ longitude $157^{\circ} 42'$; and on the west by longitude $157^{\circ} 42'$.

COAST LINE AND LANDMARKS: The coast line of Cape Kumlik and Kumlik Island is very rugged and mountainous. The south eastern coast of Cape Kumlik in sheer rocky precipices to a height of over a thousand feet. It is surmounted by a small bare plateau, on the eastern edge of which forms the base of a barren reddish range, the latter rising to an elevation of nearly 3000 feet. The coastline on the western section of the sheet is a series of rocky bluffs from 50 to 90 feet in height with an occasional short stretch of sandy beach. Rising from these bluffs is a broken mass of hills and mountains, grass and alder covered to a height of a thousand feet and terminating in barren jagged peaks at an average elevation of two thousand feet. The valleys are deeply covered with grass and alders.

The coast of Kumlik Island is bold and rocky. The southern coast rises abruptly to a height of over a thousand feet. The few narrow beaches are rocky and bolder strewn, with the exception of a short stretch of sandy beach on the northeast side of the island.

There are a number of prominent landmarks on this sheet. Kumlik island itself forms the most easily identified object. The island is approximately a mile long and half that distance in width, and, as stated above it rises sharply to an elevation of over a thousand feet.

The bold rock cliffs and the rocky plateau on the eastern extremity of the Cape also form an unmistakable landmark.

In latitude $56^{\circ} 38\frac{1}{2}'$, longitude $157^{\circ} 35\frac{1}{2}'$ is a dark cone peak bearing a great white scar formed by a landslide. The top of this peak is about 1900 feet high, and was used as an intersection station - MID.

A small rocky islet lays in vicinity of latitude $56^{\circ} 35\frac{1}{2}'$, longitude $157^{\circ} 26\frac{1}{2}'$. The shore line of this islet is chiefly rocky cliffs about 55 feet in height. The top is flat and grass covered.

A group of small islands from 50 to 80 feet in elevation lie in latitude $56^{\circ} 36\frac{1}{2}'$, longitude $157^{\circ} 29'$. These are apparently separate islands, but at low tide they connected by sandy beaches. They are easily distinguished by the whitish colored cliffs forming the shoreline. The tops are flat and grass covered.

A jagged group of rocky islets lay in the vicinity of latitude $56^{\circ} 33'$, longitude $157^{\circ} 33'$. These appear as a single saw tooth ridge sloping from rocks awash at the northern extremity to a maximum elevation of a hundred feet at the southern end. Actually, the ridge is a series of small rocky islets. The whole group extend for approximately half a mile in a north and south line.

Several groups of small rocky islets are found in the neighborhood of latitude $56^{\circ} 34\frac{1}{2}'$, longitude $157^{\circ} 41'$. These are from 30 to 50 feet in height, and with rocky precipitous shore line.

DANGERS: In latitude $56^{\circ} 35\frac{1}{2}'$, longitude $156^{\circ} 20'$ is a kelp marked reef which bares three feet at high water. Another isolated reef, kelp marked, and baring at half tide lies in latitude $56^{\circ} 35\frac{1}{2}'$, longitude $157^{\circ} 22'$. A third reef, likewise marked by kelp, baring only at low tide lies in latitude $56^{\circ} 36\frac{1}{2}'$, longitude $157^{\circ} 25\frac{1}{2}'$.

Several kelp marked reefs extend out for 400 meters from the small rocky islet previously mentioned in latitude $56^{\circ} 35\frac{1}{2}'$, longitude $157^{\circ} 26\frac{1}{2}'$.

A kelped marked reef makes out for a quarter mile easterly from signal CLAY. A dense kelp patch extends from CLAY to the beach.

A reef, well marked by growing kelp, makes out from the jagged rocky islets in the vicinity of latitude $56^{\circ} 33\frac{1}{4}'$, longitude $157^{\circ} 33'$. The reef extends in a northerly direction for a quarter mile from the northernmost islet.

An isolated breaker lies nearly a mile offshore in latitude $56^{\circ} 36\frac{1}{2}'$, longitude $157^{\circ} 31'$. It is marked by kelp and breaks at half tide in a moderate swell.

Several isolated groups of reefs and breakers lie from a quarter to a third of a mile off shore in latitude $56^{\circ} 36\frac{1}{2}'$, $157^{\circ} 30'$, $157^{\circ} 31\frac{1}{2}'$, $157^{\circ} 37'$, and $157^{\circ} 39'$. These all break in moderate swells, bare at lower low water and are marked by kelp. A broad band of kelp extends along the shore from signal PARA in longitude $157^{\circ} 28'$ to signal STUB in longitude $157^{\circ} 36\frac{1}{2}'$.

A group of rocky islets, and kelped marked reefs and breakers lie in the vicinity of latitude $56^{\circ} 36'$, longitude $157^{\circ} 41'$. From this islet a kelp marked reef two miles in length make out. This reef is more completely shown on hydrographic sheets No. 4 and A. The northern portion only of this reef is located on this sheet.

SURVEY METHODS: The hydrography of this sheet was done by the steamer Arne W. Wherever practicable the sounding was done with a twelve pound hand lead. When the depths became too great to allow the use of such methods, sounding was done with a steam sounding machine using stranded wire and a twenty pound lead.

Sounding lines were run normal to the general trend of the coastline, and in a north and south direction. Several of the lines were broken near reefs in order to obtain a better development of the danger. As a rule the lines were run by compass courses but ranges were used where ever available.

The signals used were triangulation signals and easily identified natural objects located by topography during the current season. Strong fixes were at all times available except in the extreme eastern portion of the work close under Kumlik Island.

TIDES AND CURRENTS: The soundings on this sheet were reduced from the Sitkum Bay tidal data. No current observations were made other than marking the drift of the steamer while sounding. Strong currents were observed in the vicinity of the islands upon which signal CLAY is situated. It is thought that these currents were caused by the strong tidal flow between Kumlik Island and the mainland. Marked currents were also observed at times about the reefs in the vicinity of latitude $56^{\circ} 36'$, longitude $157^{\circ} 21'$.

CHARACTER OF BOTTOM: The bottom is chiefly soft. Frequent shell characteristics were obtained. There are occasional areas of hard bottom. The bottom is for the most part very regular. The reefs seem to be in the nature of pinnacles rising from an otherwise flat bottom. Except in the vicinity of the off-lying breakers in latitude $56^{\circ} 36'$ and longitudes $157^{\circ} 20'$ and $22'$, the system of lines laid down on this sheet were considered ample to properly develop the area.

ANCHORAGES: An unsatisfactory anchorage with shelter for southwesterly and northwesterly weather may be had in back of the islands in latitude $56^{\circ} 36\frac{1}{2}'$, longitude $157^{\circ} 29'$, in 10 ~~fathoms~~ fathoms sandy bottom. No other anchorages are to be found in this vicinity.

Respectfully submitted:

Robert W. Knox

Robert W. Knox
Jr. H. & G. Eng'r.

Approved and forwarded:

Clem L. Garner

Clem L. Garner,
H. & G. Eng'r.
Chief of Party.

*Records for this work Examined and approved
Aug. 8. 29. and Sept. 5. 1920
Clem L. Garner*

STATISTICS SHEET
to accompany

Hydrographic Sheet No. 5

VICINITY OF CAPE KUMLIK

	Letter	Volume	Positions	Soundings	Statute Miles	Vessel
1925						
Aug. 7	a	1	23	30	8.0	Anne W.
18	b	1	43	48	7.6	" "
19	c	1	48	63	16.0	" "
20	d	1	92	98	30.3	" "
25	e	1	58	63	13.2	" "
26	f	1	129	133	34.4	" "
27	g	2	70	73	17.7	" "
Sept. 1	h	2	109	115	28.2	" "
2	j	2	40	48	11.8	" "
9	k	2	45	62	11.8	" "
11	l	2	30	41	9.8	" "
Totals	ll	2	687	774	188.8	Totals

Area: 56 square statute miles

E. P. K.

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO. 11-DEM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

December 29, 1926.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4495

Cape Kumlik and Vicinity, Alaska Peninsula

Surveyed in 1925

Instructions dated March 25, 1925 (DISCOVERER)

Chief of Party, C. L. Garner.

Surveyed by R. W. Knox.

Protracted and soundings plotted by L. M. Zeskind.

Verified and inked by H. E. MacEwen.

1. The records conform to the requirements of the General Instructions, except that details regarding rocks and reefs were omitted from the records. Frequently but one cut was recorded although the boat sheet showed evidence that other cuts were taken. The boat sheet location for the rocks and reefs could not always be accepted on account of the error in the plotting of some of the signals on the boat sheet. An adjustment had to be made in most cases of the cuts shown on the boat sheet. From these and the information given on the topographic sheet, a fairly accurate representation is believed to have been obtained of the rocks and reefs.
2. The plan and character of development satisfy the requirements of the General Instructions except that the work was not carried closer than about 1/4 mile from shore. This was doubtless due to the thick kelp and reefs that characterize these shores. The size of the launch used probably also added to the difficulties of sounding closer inshore.
3. The plan and extent of development satisfy the specific instructions in a general way. There are extensive areas outside the main 20 fathom curve with depths less than 20 fathoms that were developed with approximately 600 meter lines instead of 300 meter lines as called for. These can be seen from an inspection of the

sheet. More soundings should have been taken in the vicinity of some of the reefs to better develop their extent. An important 11 fathom sounding found in the main system of lines in lat. $56^{\circ} 36' 570$ m., long. $157^{\circ} 21' 180$ m. was left without development.

4. The information is sufficient for drawing the usual depth curves except inshore and around some of the reefs.
5. This sheet was entirely plotted in the office and was a part of an experimental scheme. It cannot be said that the scheme was successful, so far as this sheet was concerned, the principal reason being the incompleteness of the records and the poor plotting of some of the signals on the boat sheet. Considerable time was consumed in an attempt at properly delineating the rocks and reefs. It is believed that under the circumstances perhaps a better result would have been obtained if the work was plotted under the immediate supervision of the Chief of Party or of the officer in actual charge of the survey.
6. There are no cross lines on this sheet. A comparison of adjacent lines, although widely spaced, shows a good agreement.
7. There is no actual overlapping hydrography between this sheet and H. 4520 on the west. The two sheets are separated by the reef off Cape Kumlik.

The junctions with H. 4506 and H. 4497 will be taken up in the reviews of those sheets.

8. Additional work is required in the following places to complete the work on this sheet:

Not necessary
a. Extend the work as far inshore as practicable.

b. Additional development in the vicinity of Δ Clay (lat. $56^{\circ} 36' 1/2$, long. $157^{\circ} 29'$).

OK
c. Run split lines inside the 20 fathom curve in the vicinity of lat. $56^{\circ} 36'$, long. $157^{\circ} 21'$ and the vicinity of lat. $56^{\circ} 36'$ long. $157^{\circ} 26'$

OK
d. Develop the 11 fathom sounding in lat. $56^{\circ} 36' 570$ m., long. $157^{\circ} 21' 180$ m.

OK
e. Δ Bram should be re-located. There is a discrepancy between the topographic determination and the triangulation location. The latter was used in the plotting of the sheet although in many cases "jumps" in the lines resulted. Notwithstanding this the triangula-

tion location seems to give generally better results.

9. Character and scope of field operations - good.

10. Reviewed by A. L. Shalowitz, December, 1926.

Approved:

A. L. Giacomini
Chief, Section of Field Records (Charts)

L. O. Polkitt
Chief, Section of Field Work (H. & T.)

Prepared by L. M. Jackson

Memorandum Report on Hydrographic Sheet 4495

1. Triangulation signals were carelessly plotted on boat sheets. the positions of these stations as plotted being out of their correct position anywhere from 20 to 80 meters. This resulted in making the smooth sheet plotting considerably more difficult, since there was such a great discrepancy between smooth sheet and boat sheet positions that frequent checking of plotting had to be made.

2. Locations of the many reefs covering the area of the hydrography was poorly done. In very many cases the sounding records gave but a single sextant cut to a very important reef. Although the boat sheet indicated other cuts it was often impossible to discern where these cuts were taken from. Even when it was possible to tell from which position the cuts were taken, it was impossible to get an accurate azimuth inasmuch as the boat sheet positions were sometimes 200 m from their correct locations. Although there were numerous opportunities to locate the reefs by a compass bearing and an estimated distance when the sounding lines were run around these reefs, this apparently was not done.

3. Some doubt exists as to the correct location of A Bram. Although positions plotted with the triangulation location of Bram appear to be much better than if plotted with the topographic location, ~~it is~~ nevertheless there results in some cases a "jump in the line" when switching from a position using Bram to one in which Bram is not used. As this signal is used in the determination of a large portion of the positions on this sheet, the uncertainty of the correctness of this position throws some doubt on the controls of the survey.

①

Report on hydrographic sheet 4495

Sunken rock in lat $56^{\circ}36.2'$ long $157^{\circ}31'$ is located by one cut from position 79 d and a note in record opposite position 22 e "breaker 75 m port beam. As a distance of 75 m. ahead position 22 e does not fall on the cut it was assumed that the breaker was probably ahead at a point about midway between positions 22 e and 23 e and the breaker was located accordingly.

Breaker at lat $56^{\circ}36.1'$ and long $157^{\circ}40.8'$ is located by one recorded cut from position 30 b and another cut from position 35 b shown on boat sheet but not recorded. This breaker is located on the smooth sheet by the recorded cut and an azimuth of the cut shown on boat sheet.

Reef located at ^{lat} $56^{\circ}36.3'$ and long $157^{\circ}25.4'$: Several recorded cuts taken apparently to the northernmost of three rocks. This location agrees closely with the topographic. However the general trend of the reef as shown on the hydro boat sheet disagrees with the topographic location and the latter is accepted for the hydro smooth sheet.

Lat ②
Reef located at $56^{\circ}35.9'$, long $157^{\circ}20.2'$: largest
and westernmost rock of this group very well located
by numerous cuts other rocks shown were transferred
from boat sheet ✓

Lat
Reef located at $56^{\circ}36.7'$, long $157^{\circ}30.1'$ is shown
on topographic sheet as composed by two rocks awash
while on the hydrographic ^{boat} sheet the reef is shown as
composed of one large rock and two smaller ones. The
sounding record gives but one cut to the larger rock
(from position 79d). The location of this rock was
made on the hydro smooth sheet by the recorded cut and
azimuths from positions 10e and 11e. The reef is
shown on boat sheet as extending NW and SE while on
the topographic sheet it is shown north and south ✓

Lat
Reef located at $56^{\circ}36.7'$ long $157^{\circ}37.0'$:
Position of this reef as determined by hydrographic
party agrees closely with topographic location ✓

Rock located at lat $56^{\circ}35.8'$ long $157^{\circ}22.1'$:
(from 13h)
Only one recorded cut was taken to this rock. However
boat sheet shows cuts from 62h and 7h. The rock
was therefore located on the smooth hydro sheet by
the cut from 13h and azimuths from 62h and 7h taken
from the boat sheet ✓

(3)

Reef $\frac{1}{4}$ m east of A Clay

Topographic sheet shows this reef composed of two sunken rocks while hydrographic boat sheet shows reefs composed of three rocks awash about 100 meters north of the topographic location and extending 200 meters farther westward.

No cuts or other information is given in the sounding records to show the basis for the location of this reef by the hydrographic party. However the boat sheet reveals cuts from positions 4K and 17K to the easternmost of the three rocks. Accordingly the easternmost rock is located on the smooth hydrographic sheet by azimuth from the above position. The other two rocks are transferred from boat sheet.

Rock located at lat $56^{\circ}36.7'$ long $157^{\circ}31.7'$
This rock is shown on the boat sheet but no information whatever is given in the sounding records as to its location.

A symbol which is probably intended to represent a rock, appears on the topographic sheet in a position agreeing closely with that of the rock shown on the boat sheet.

The topographic location is shown on the smooth hydrographic sheet.

Section of Field Records

Report on sheet no. H-4495

Surveyed in 1925

Chief of Party - C. L. Garner

Projected by - L. M. Jeskind

Soundings Plotted by - L. M. J.

Verified and inked by - W. E. MacEwen

1. The records conform to the requirements of the general instructions except that in some instances the boat heading by compass was omitted. A lack of explanatory notes was noted. At critical places helpful information which was necessary for clear understanding of the field parties actions was omitted. This is especially true of important rocks and reefs and their development.
2. The plan and character of the development fulfilled the requirement of the general instructions except in the case of several important rocks and reefs. In many cases no more than the usual sounding lines were run whereas a close development of the dangers would have been highly desirable. These dangers were not all located with the accustomed accuracy. (See Memorandum Report on H. 4495 by L. M. Jeskind - in descriptive report)

3. No system of sounding line crossings were used.
4. With the exception of the one, two, three, and five fathom curves the curves can be completely drawn.
6. This sheet reached the office in complete, with the exception of the projection and the topographic points the survey was completed in the office.
7. The junction with adjacent sheets are satisfactory as far as completed.
8. Except for several important shoals and reefs not properly developed, no further surveying is required within the limits of this sheet.
9. Remarks: The office draftsman did not find any discrepancies in the workmanship of this sheet except in the area around the large dog-ear south of Kunkuk Island. This however was caused by weather conditions buckling excessively that area of the sheet. A good check on the work was obtained before the buckling took place. For detailed information on the character of the surveying the reviewer is directed to Mr. J. K. Munn's Memorandum Report on H-4495 attached to the Descriptive Report.

Report H. 4495

10. Rating of work.

(a) Character and scope of Surveying - Fair.

(b) Drafting - Excellent.

Respectfully submitted

W. E. MacSwain
Cartographer

Reviewed by:

11/4/26

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

4495

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. ⁽⁵⁾ 4495

State . ^{SW.} ~~South West~~ Alaska

General locality . ~~Alaskan~~ Peninsula

Locality . Cape Kumlik and Vicinity

Chief of party . Clem L. Garner

Surveyed by . Robert W. Knox

Date of survey . August - September, 1925

Scale 1 : 20,000

Soundings in . . Fathoms

Plane of reference . Mean Lower Low Water

Protracted by Soundings in pencil by

Inked by Verified by

Records accompanying sheet (check those forwarded):

Des. report, 0 Tide books, * Marigrams, 1 Boat sheets,

2 Sounding books, 0 Wire-drag books, 0 Photographs.

Data from other sources affecting sheet . none

Remarks: